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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
EKONG, EMEM	

ART UNIT	PAPER NUMBER
2617	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/849,579	DIPIAZZA, GERALD C.	
	Examiner	Art Unit	
	EMEM EKONG	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 May 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26 and 28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *19* is/are allowed.

6)☒ Claim(s) *1-18, 20-26, and 28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 May 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claim 25 have been fully considered but they are not persuasive.

Applicant's argument that Carter uses only the signal strength of received beacon signals to determine the location of the object is not persuasive for the reason that Carter also discloses the use of unique Id codes in a building for tracking location of portable transceivers (see pars. 5-6, and 52-53), therefore Carter discloses applicant's limitation above. Therefore the argued limitations are the same as disclosed by the reference, rejections are maintained as repeated below.

2. Applicant's arguments with respect to the rest of claims have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

3. Claim 19 is allowed.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. **Claims 1, 2, 4, 5, 7, 15-18, and 20-22** are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Publication No. 2003/0211827 A1 to Yonezawa et al. (Yonezawa) in view of U. S. Patent No. 6,745,036 B1 to Dunne et al., and further in view of U. S. Patent No. 6,895,218 B2 to Yarkosky.

Regarding claim 1, Yonezawa discloses a communication system, comprising: a first communication module adapted to: receive a first type of communication signal, convert the first type of communication signal to a second type of communication signal (pars. 16, and 33, base station-directed unit) and transmit the second type of communication signal to a second communication module (pars. 17, and 33, mobile station-directed unit); the second communication module disposed on a building and adapted to receive the second type of communication signal from the first communication module, and transmit the second type of communication signal inside the building to a third communication module (see figure 3, pars. 2-4, 17 and 36, a mobile station-directed unit provided at the center of the ceiling); and the third communication module located inside the building and adapted to receive the second

type of communication signal (see figure 2, and par. 35, a plurality of mobile station-directed units in a plurality of rooms, walls or floors).

However, Yonezawa fails to disclose transmit the second type of communication signal inside the building to a third communication module at a power level based on a signal-to-interference level.

In a similar endeavor, Dunne discloses transmit the second type of communication signal inside the building to a third communication module at a power level based on a signal-to-interference level (col. 5 lines 29-65, col. 7 lines 65-67, and col. 11 lines 15-20).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Yonezawa, and have the second type of communication signal transmitted inside the building to a third communication module at a power level based on a signal-to-interference level as disclosed by Dunne for the purpose of transmitting a good signal.

However, Dunne fails to disclose third communication module converting the second type of communication signal into the first type of communication signal, and transmit the first type of communication signal.

Yarkosky discloses third communication module converting the second type of communication signal into the first type of communication signal, and transmit the first type of communication signal (see figure 8, col. 8 lines 1-39, mobile station interface port 366 converts the intermediate downlink signal (second type of communication signal) it receives 364 into the downlink frequency (first type of communication signal),

the downlink signal (first type of communication signal) was previously converted into an intermediate downlink signal (second type of communication signal), by the propagation relay 352.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Dunne, and have the third communication module convert the second type of communication signal into the first type of communication signal, and transmit the first type of communication signal as disclosed by Yarkosky for the purpose of more repeaters in transmission of a first type of communication signal to increase the propagation distance.

Regarding claim 2, the combination of Yonezawa, Dunne, and Yarkosky discloses the system of claim 1, wherein: the third communication module is configured to: receive the first type of communication signal; convert the first type of communication signal into the second type of communication signal (Yarkosky, see figure 8, col. 8 lines 20-24, first mobile station interface port 366); and transmit the second type of communication signal to the second communication module; the second communication module is configured to: receive the second type of communication signal from the third communication module; and transmit the second type of communication signal to the first communication module (Yarkosky, col. 8 lines 24-27, second mobile station interface port 358); and the first communication module is configured to: receive the second type of communication signal; convert the second type of communication signal to the first type of communication signal; and transmit the

first type of communication signal (Yarkosky, col. 8 lines 25-28, propagation relay converts received intermediate signal to uplink signal sent to base station).

Regarding claim 4, the combination of Yonezawa, Dunne, and Yarkosky discloses the system of claim 2, wherein the first type of communication signal is one of: a mobile communication signal; and a legacy wireless communication signal (these are well known with cellular phone and PDA).

Regarding claims 5, 16, 20, and 21, the combination of Yonezawa, Dunne, and Yarkosky discloses the system of claims 1 and 2, wherein the first type of communication signal is carried over at least one of: an approximately 400 MHz frequency band; an approximately 800 MHz frequency band; an approximately 900 MHz band; an approximately 1800 MHz band; and an approximately 2 GHz frequency band; wherein the first communication module is mounted to an elevated structure; wherein the first communication signal is adapted to up-convert the first type of signal to the second type of signal; wherein the first communication signal is adapted to down-convert the first type of signal to the second type of signal. (Yarkosky, see figure 1, col. 3 lines 29-46, and col. 6 lines 42-48).

Regarding claims 7, 15, 17, 18, and 22, the combination of Yonezawa, Dunne, and Yarkosky discloses the system of claims 1 and 2, wherein the second type of communication signal is mounted inside a window of the building (Yonezawa, see figure

2 and par. 35, radio repeating signals capable of passing through walls, floors and so forth, plurality of mobile station-directed units are used in plurality of rooms floors including windows); wherein the first communication module is mounted to a structure at ground level; wherein the first communication module comprises an antenna, wherein the antenna is a high gain fan beam antenna; wherein the system is configured for floor-to-floor communication; and wherein the second communication module is on the top of the building (Yonezawa, see figures 2, 3, 5, pars. 9, and 35) .

7. **Claims 3 and 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Yonezawa in view of Dunne, and further in view of Yarkosky, and further in view of U. S. Publication No. 2004/0137842 A1 to Iwata et al. (Iwata).

Regarding claims 3 and 12, the combination of Yonezawa, Dunne, and Yarkosky discloses the system of claim 1, however, the combination fails to disclose wherein: the third communication module comprises communication processing circuitry that is configured to validate the second type of communication signal; and the third communication module only transmits the type of communication signal if the second type of communication signal is validated by the communication processing circuitry; the first communication module comprises communication processing circuitry that is configured to validate the first type of communication signal; and the first communication module only transmits the second type of communication signal if the first type of communication signal is validated by the communication processing circuitry.

Iwata discloses the first communication module comprises communication processing circuitry that is configured to validate the third and first type of communication signal; and the first communication module only transmits the second type of communication signal if the first type of communication signal is validated by the communication processing circuitry (par. 58, terminal information transmitting unit 106 adds authentication data and data which allows a data source to be identified for each terminal device to transmission data).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combination, and have the third and first communication module comprises communication processing circuitry that is configured to validate the first type of communication signal; and the first communication module only transmits the second type of communication signal if the first type of communication signal is validated by the communication processing circuitry as taught by Iwata for the purpose of authentication data

8. **Claim 6** is rejected under 35 U.S.C. 103(a) as being unpatentable over Yonezawa in view of Dunne, and further in view of Yarkosky as applied to claim 2 above, and further in view of U. S. Patent No. 6,421,027 B1 to Takatori et al. (Takatori).

Regarding claim 6, the combination of Yonezawa, Dunne, and Yarkosky discloses the system of claim 2, however, the combination fails to disclose wherein the second type of communication signal is a millimeter wave signal.

Takatori discloses receiving a communication signal being a millimeter wave signal (col. 2 lines 54-62).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combination, and have the second type of communication signal is a millimeter wave signal as taught by Takatori for the purpose of increasing transfer speed of wireless communication (col. 2 lines 1-14).

9. **Claims 8 and 9** are rejected under 35 U.S.C. 103(a) as being unpatentable over Yonezawa in view of Dunne, and further in view of Yarkosky as applied to claim 1 above, and further in view of U. S. Publication No. 2002/0177401 to Judd et al. (Judd).

Regarding claims 8 and 9, the combination of Yonezawa, Carter, and Yarkosky discloses the system of claim 1, however the combination fails to specifically disclose wherein the second communication module is mounted outside a window of the building; wherein the second communication module is mounted inside a window of the building. Judd discloses wherein the second communication module is mounted outside and inside a window of the building (see figure 5, and pars. 36-37).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combination, and have the second communication module is mounted outside and inside a window of the building for the purpose of enhancing propagation of communication.

10. **Claims 10, 11, and 14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Yonezawa in view of Dunne, and further in view of Yarkosky and further in view of U. S. Publication No. 20010031623 A1 to Masoian.

Regarding claims 10 and 11, the combination of Yonezawa, Dunne, and Yarkosky discloses the system of claim 1, wherein the array antennas comprise interconnected beam-forming array patterns on both the outward and the inward facing sides, separated by an intervening ground plane (Yarkosky, see figure 1).

However, the combination fails to disclose the second communication module comprises at least one antenna that is a low to moderate gain array antenna.

Masoian discloses low to moderate gain array antennas (par. 0022).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combination, and have the second communication module comprises at least one antenna that is a low to moderate gain array antenna, wherein the low to moderate gain array antennas comprise interconnected beam-forming array patterns on both the outward and the inward facing sides, separated by an intervening ground plane for the purpose of array patterns being sent towards a certain direction.

Regarding claim 14, the combination of Yonezawa, Dunne, and Yarkosky discloses the system of claim 1, however, the combination fails to disclose wherein the first communication module is mounted on top of a vehicle. Masoian discloses wherein the first communication module is mounted on top of a vehicle (see figure 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combination, and have the first communication module is mounted on top of a vehicle as shown by Masoian for the purpose of emergency notification.

11. **Claim 13** is rejected under 35 U.S.C. 103(a) as being unpatentable over Yonezawa in view of Dunne, and further in view of Yarkosky, and further in view of Iwata, and further in view of U. S. Patent No. 3,876,980 to Haemmlg et al. (Haemmlg).

Regarding claim 13, the combination of Yonezawa, Carter, Yarkosky, and Iwata discloses the system of claim 12, however, the combination fails to disclose wherein the communication processing circuitry validates the first type of communication signal if the first type of communication signal is an emergency telephone called placed or received by emergency personnel.

Haemmlg disclose wherein the communication processing circuitry validates the first type of communication signal if the first type of communication signal is an emergency telephone called placed or received by emergency personnel (col. 3 lines 35-65, the precoded message provided by the portable transmitter is verified by the emergency signal verify).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combination, and have the communication processing circuitry validates the first type of communication signal if the first type of communication signal is an emergency telephone called placed or received by

emergency personnel as taught by Haemmlg for the purpose of verifying the validity of received emergency message.

12. **Claim 23** is rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Publication No. 2004056457 A to Ami et al. in view of Yarkosky.

Regarding claim 23, Ami discloses an apparatus comprising a communication module (millimeter wave transmitter 22 and receiver 23A-C) mountable to the side of a building and the communication module is configured to: receive a radio signal (see fig. 3, and par. 21) from another communication module located on the side of the building, the radio signal originating from an elevation different than the communication module; (see figure 1, and pars. 21, signals originating from antenna 31-33) and propagated at least one substantially downward along an outside surface of the building (signal transmitted from millimeter wave transmitter 22 to receiver 23 are transmitted substantially downward along an outside surface of the building); and transmit the radio signal into the building (see fig. 1, receiver 23 transmit signal into building to be received by receiver set 42-43).

However, Ami fails to disclose transmit the radio signal substantially upward along an outside of the building.

Yarkosky discloses transmit the radio signal substantially upward along an outside of the building (see figures 1, 5, and col. 3 lines 55-58, uplink signal 22 is transmitted substantially downward along an outside of the building).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Ami, and have the radio signal such that the radio waves communicating the radio signal propagate at least one of substantially upward along an outside of the building as disclosed by Yarkosky for the purpose of transmitting it through to the communication modules.

13. **Claim 24** is rejected under 35 U.S.C. 103(a) as being unpatentable over Ami in view of Yarkosky, and further in view of Takatori.

Regarding claim 24, the combination of Ami and Yarkosky discloses the apparatus and method of claim 23, wherein the radio signal carries at least one of an up-converted mobile communication signal, an up-converted and a down-converted legacy wireless communication signal (Yarkosky col. 6 lines 42-48, down convert and up convert downlink signal). However, the combination fails to disclose a millimeter wave radio signal. However, the combination fails to disclose wherein the radio signal carries at least one of an up-converted mobile communication signal, an up-converted and an down-converted legacy wireless communication signal.

Takatori discloses a millimeter wave radio signal (col. 2 lines 54-62).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combination, and have a millimeter wave radio signal as taught by Takatori for the purpose of increasing transfer speed of wireless communication (col. 2 lines 1-14).

14. **Claim 25 is** rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Publication No. 2004/0176027 A1 to O'Neill in view of Carter.

Regarding claim 25, O'Neill discloses a method comprising: receiving a radio signal at a communication module, wherein the communication module is mounted to the side of a building (see figure 1, and par. 45, repeater system 20 located near the window receives signals from base station), wherein the radio signal originated from an elevation different than the communication module; and transmitting the radio signal into the building (see figure 1, and pars. 45-47, signals that are received from base station by repeater system 20 are transmitted to subscriber unit inside the building).

However, O'Neill fails to disclose the signal is encoded with an indication of the elevation from which the signal was transmitted.

Carter discloses the signal encoded with an indication of the elevation from which the signal was transmitted (pars. 2, 4-6, and 48-49). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of O'Neill, and have the signal encoded with an indication of the elevation from which the signal was transmitted as disclosed by Carter for the purpose of using transmitted signal in determining the location of a person in the building.

15. **Claim 25 is** rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Publication No. 2004/0176027 A1 to O'Neill in view of U S Patent No. 3,665,313 to Trent.

Regarding claim 25, O'Neill discloses a method comprising: receiving a radio signal at a communication module, wherein the communication module is mounted to the side of a building (see figure 1, and par. 45, repeater system 20 located near the window receives signals from base station), wherein the radio signal originated from an elevation different than the communication module; and transmitting the radio signal into the building (see figure 1, and pars. 45-47, signals that are received from base station by repeater system 20 are transmitted to subscriber unit inside the building).

However, O'Neill fails to disclose the signal is encoded with an indication of the elevation from which the signal was transmitted.

Trent discloses the signal encoded with an indication of the elevation from which the signal was transmitted (col. 2 lines 25-31, and col. 4 lines 1-6). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of O'Neill, and have the signal encoded with an indication of the elevation from which the signal was transmitted as disclosed by Trent for the purpose of using transmitted signal in determining the location of a person in the building.

16. **Claims 26, and 28** are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Neill in view of Carter, and further in view of Yarkosky, and further in view of Takatori.

Regarding claims 26, and 28, the combination of O'Neill and Carter discloses the apparatus and method of claim 25, wherein the signal includes an indication of a floor of the building from which the signal was transmitted (see figure 5 and par. 49), however,

the combination fails to disclose wherein the radio signal carries at least one of an up-converted mobile communication signal, an up-converted and an down-converted legacy wireless communication signal.

In a similar endeavor, Yarkosky discloses wherein the radio signal carries at least one of an up-converted mobile communication signal, an up-converted and a down-converted legacy wireless communication signal (col. 6 lines 42-48, down convert and up convert downlink signal). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combination, and have the radio signal carries at least one of an up-converted mobile communication signal, an up-converted and an down-converted legacy wireless communication signal as taught by Yarkosky for the purpose of transmission through a building. However, Yarkosy fails to disclose a millimeter wave radio signal.

Takatori discloses a millimeter wave radio signal (col. 2 lines 54-62).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combination, and have a millimeter wave radio signal as taught by Takatori for the purpose of increasing transfer speed of wireless communication.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to EMEM EKONG whose telephone number is 571 272 8129. The examiner can normally be reached on 8-5 Mon-Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on 571 272 7922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

EE
06/06/2006

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